



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/560,846

12/15/2005

Kiyoshi Fujii

39088

2071

52054 7590 10/19/2007
PEARNE & GORDON LLP
1801 EAST 9TH STREET
SUITE 1200
CLEVELAND, OH 44114-3108

EXAMINER

BOR, HELENE CATHERINE

ART UNIT

PAPER NUMBER

3768

NOTIFICATION DATE

DELIVERY MODE

10/19/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patdocket@pearne.com
dchervenak@pearne.com

Office Action Summary

Application No.

10/560,846

Applicant(s)

FUJII, KIYOSHI

Examiner

Helene Bor

Art Unit

3768

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 3 2nd paragraph, filed 08/01/2007, regarding the drawings have been fully considered and are deemed persuasive. Therefore, the objections to the drawing are withdrawn.

2. Applicant's amendments in regards to the specifications, see page 3 4th paragraph, filed 08/01/2007, have been fully considered and overcome the objections. Therefore, the objections to the specification and the title are withdrawn.

3. Applicant's arguments, see page 4 1st paragraph, filed 08/01/2007, regarding the 35 U.S.C 112 second paragraph rejection, have been fully considered but they are not persuasive. The applicant argues that Ramamurthy uses the term "window". Thus, since Ramamurthy uses the term, "window" is understandable to one of ordinary skill in the art. The examiner respectfully disagrees. While Ramamurthy uses the term "window", another term "lens" almost always accompanies "window". Ramamurthy's use of the term "lens" preceding "window" further defines "window" and its structural and functional relationship with the system. The examiner wishes to draw the applicant's attention to Slayton (US Patent No. 6,623,430), which is a patent within the applicant's field of endeavor. In Figure 5, Element 502, Slayton uses the term "window" and is using the term differently than Ramamurthy. The example is meant to show that the term is used within the art of thermal control of ultrasound transducers and carrying differing meanings. The applicant's use of "window" without further defining the terms functional and structural relationship with the rest of the leaves the term to be

Art Unit: 3768

indiscernible to one of ordinary skill in the art. The claim language is such that a person of ordinary skill in the art could not interpret the metes and bounds of the claim to understand how to avoid infringement. Thus, the 35 U.S.C. 112, second paragraph rejection is maintained.

4. Applicant's arguments filed 08/01/2007 have been fully considered but they are not persuasive. The declaration filed on 08/01/2007 under 37 CFR 1.131 has been considered but is ineffective to overcome the Ramamurthy reference. The evidence submitted is insufficient to establish a reduction to practice of the invention in this country or a NAFTA or WTO member country prior to the effective date of the June 23, 2003 reference. In general, proof of actual reduction to practice requires showing that the apparatus actually existed and worked for its intended purpose (See MPEP 715.07). The applicant submitted evidence of conception of the invention but the declaration is ineffective in proving the reduction of practice. The applicant argued that Ramamurthy reference did not teach "calculating the sound velocity of ultrasonic waves based on the difference between the reflex time of the ultrasonic wave reflected from the inner surface of a window in contact with a test subject and the reflex time of ultrasonic wave reflected from the outer surface of the window and the thickness of the window." The rejection 35 USC § 102(e) was made as best understood by the examiner and is maintained. Ramamurthy'551 teaches a difference of velocity/attenuation at varying distances [lens or window surface] and that the changing [difference] ratio over time indicates temperature or temperature change (Col. 12, Line 47- Col. 13, Line 19). Ramamurthy'551 teaches calculating the temperature based on the thickness of the

window/lens (t_1) and the propagation velocity (v_1) (Col. 10, Line 40-60). From the calculating, a temperature of the window is calculated (Col. 12, Line 65 – Col. 11, Line 10). The rejection 35 USC § 102(b) was made as best understood by the examiner and is maintained. The applicant argued that The term “window” was interpreted to mean an access layer because the structural and functional relationship of the claimed “window” with its system is unclear. Umemura teaches measuring the intensity and the echo signal reflected to monitor the change in the acoustic impedance and in the sound velocity due to the temperature rise of the irradiation zone (Col. 7, Line 35-39). Umemura teaches the temperature calculation by velocity difference as claimed by the applicant and as best understood by the examiner.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 1 & 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The feature “a window” is not clearly defined in structure or function with relation to the claimed invention.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Ramamurthy et al. (US Patent No. 7,156,551 B2).

Claim 1: The rejection is made on the claim as best understood by the examiner. Ramamurthy'551 teaches an ultrasonic diagnostic apparatus that measures temperature dependent properties (Abstract). Ramamurthy'551 teaches measuring the temperature of the lens or window of an ultrasound probe as a function of changes in velocity of sound (Col. 1, Line 45-47). Ramamurthy'551 teaches a difference of velocity/attenuation at varying distances and that the changing ratio over time indicates temperature or temperature change (Col. 12, Line 47- Col. 13, Line 19).

Ramamurthy'551 teaches calculating the temperature based on the thickness of the window/lens (t_1) and the propagation velocity (v_1) (Col. 10, Line 40-60). From the calculating, a temperature of the window is calculated (Col. 12, Line 65 – Col. 11, Line 10). Ramamurthy'551 teaches the apparatus controlling ultrasonic wave output based on temperature calculated by the temperature calculation means (Col. 14, Line 36-45).

Claim 2: The rejection is made on the claim as best understood by the examiner. Ramamurthy'551 teaches an ultrasonic diagnostic apparatus that measures temperature dependent properties (Abstract). Ramamurthy'551 teaches measuring the temperature of the lens or window of an ultrasound probe as a function of changes in velocity of sound (Col. 1, Line 45-47). Ramamurthy'551 teaches a difference of velocity/attenuation at varying distances and that the changing ratio over time indicates temperature or temperature change (Col. 12, Line 47- Col. 13, Line 19).

Ramamurthy'551 teaches calculating the temperature based on the thickness of the

window/lens (t_1) and the propagation velocity (v_1) (Col. 10, Line 40-60).

Ramamurthy'551 teaches the calculation of gel/tissue/water by using the curve fitting approach (Col. 12, Line 66 – Col. 13, Line 3) or by using a lower frequency excitation signal to provide a larger reflection from the lens or window surface (Col. 11, Line 63 – Col. 12, Line 3). From the calculating, a temperature of the window is calculated (Col. 12, Line 65 – (Col. 11, Line 10). Ramamurthy'551 teaches the apparatus controlling ultrasonic wave output based on temperature calculated by the temperature calculation means (Col. 14, Line 36-45).

Claim 3/1: Ramamurthy'551 teaches memory for storing the calculations and performing calibrations before a single temperature measurement or at the time of manufacture. Ramamurthy'551 also teaches the transducer communicating reference information/transducer properties to the ultrasound system for the purpose of identification and calibration (Col. 14, Line 46 – Col. 15, Line 10).

Claim 4/2: Ramamurthy'551 teaches memory for storing the calculations and performing calibrations before a single temperature measurement or at the time of manufacture. Ramamurthy'551 also teaches the transducer communicating reference information/transducer properties to the ultrasound system for the purpose of identification and calibration (Col. 14, Line 46 – Col. 15, Line 10).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 3768

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Umemura'042 et al. (US Patent No. 4,865,042).

Claim 1: The rejection is made on the claim as best understood by the examiner. Umemura'042 teaches measuring the intensity and the echo signal reflected to monitor the change in the acoustic impedance and in the sound velocity due to the temperature rise of the irradiation zone (Col. 7, Line 35-39). Umemura'042 teaches monitoring means [output] (Col. 6, Line 35-38) for temperature sensing and make it convenient to position the irradiation target [controlling ultrasonic wave output] (Col. 7, Line 11-20). Umemura'042 does not teach a "window" however since the structural and functional relationship of the "window" is unclear, the term is being interpreted as the access layer in the treated zone. Umemura'042 teaches using the signals indicating the depth and radius of the focal zone or "window" (Col. 7, Line 22-26).

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 3768


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helene Bor whose telephone number is 571-272-2947. The examiner can normally be reached on M-T 8:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

hcb


BRIAN L. CASLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3768